

## **Barriers and Opportunities for DG Utility/Customer Perspective**



*Presented by*

**Al Figueroa**

**VFL Energy Solutions**

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## **Overview**



- Markets for DG?
- Benefit is in the Eye of the Beholder
- A View From the Top - Utilities/Customers
- Real-World Considerations
- Opportunities for DG
- Analysis/Implementation Process
- Outcome of Analysis
- Summary



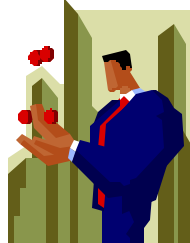
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## Markets for Distributed Generation

### CHP Applications

- Industrial / Commercial
- Hospitals / Health
- Resorts
- Multi-residential – Single meter



### Electric Only Applications

- Industrial / Commercial with sensitive loads
- Other Businesses to reduce cost – Peak shaving
- Electric Distribution Grid Support



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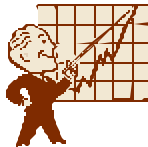
## Benefit is In the Eye of the Beholder

### ➤ End-Use Customer

- Reduce energy costs
- Supplement power when needed
- Increase electric service reliability
- Decrease exposure to electricity price volatility
- Improve power quality

### ➤ Utility Grid Support (MW size)

- Better utilization of T&D assets
- Reliability improvement
  - **voltage & VAR support**
- Defers grid upgrades
  - through integrated planning
- Flexibility on distribution system upgrades



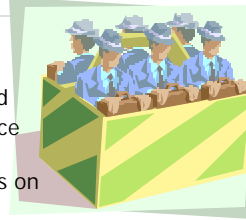
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## Utility Perspective on DG

- System's benefits are premature
  - Impacts to electric grid not yet verified
  - Dynamics of DG operation might reduce reliability
  - Positive impact from small DG systems on distribution circuits to be negligible
- Economic justification based on specific application and term
  - DG is viewed as a short-term solution
  - No implementation due to economics
- Support of standards for interconnection to the grid
  - Interconnection requirements are for safety



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## What Does That Mean ?

- Don't have enough detailed information to assess benefits to electric grid
- Will require risk on customer side with physical assurance
- Utility economics based on a specific project
- Will support the interconnection of DG to meet regulatory mandate
- No economic incentive for utilities to embrace DG



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## Real-World Considerations

### ➤ Utility

- *Standby/backup power costs*
- *Interconnection requirements*
- *Changing rate structures*

### ➤ Environmental permits

- *Airborne emissions limitations*
- *Noise restrictions*

### ➤ Local zoning restrictions /permitting

### ➤ Fuel infrastructure

### ➤ Community impacts



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## More Real-World Stuff

### ➤ Regulatory Activity

- Incentive programs to encourage deployment of DG
- Confusing mix of legislative bills with disincentives for DG
  - *Exit & stand-by fees, Increased emissions control*
- Gas Industry Restructuring (GIR) decision could have significant impact
  - *Local utility gas procurement for noncore customers*
  - *Eligibility of customers to be Core vs Noncore*
  - *Curtailment priorities*



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## What About the Customers ?

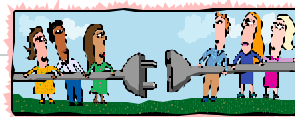
- Customers want options, but they're confused
- What are the total costs of DG?
- How do they get started?
- They are not in the electric business
- Bottom line – Customers want savings and reliable service



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## Opportunities



- Third-parties providing energy services with on-site generation – energy contracts
- Customers can take advantage of incentive programs
  - CA incentives on first cost
  - Federal and State tax incentives
- Analyze critical facility operations
  - Determine cost of power outages
- Conduct a DG study to determine potential fit and estimated costs
- Seek professional engineering/consulting help
  - *Look for a solutions, not a technology*



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## Analysis/Implementation Process

### Technologies

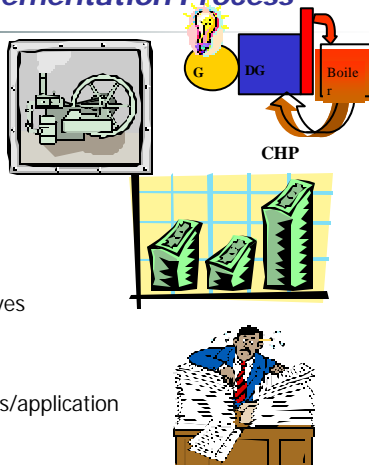
- Electric only
- CHP

### Economics

- Cost of capital
- Rate of return
- Tax rates
- Government incentives

### Installation

- Permits
- Interconnection fees/application
- Fuel contracts

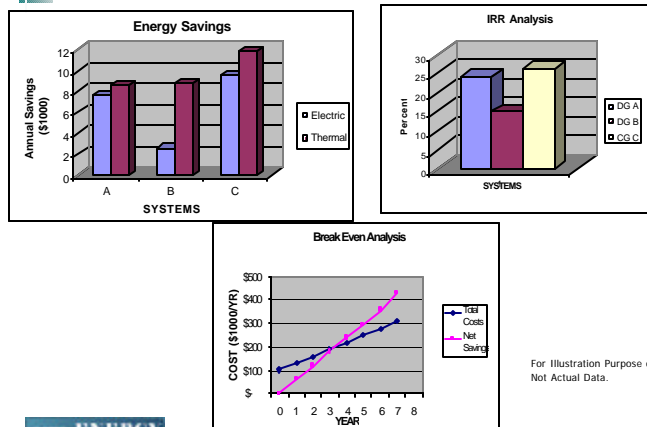


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## Technical & Economic Outcome



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## Summary

- Utility perspective is conservative
- DG applications based on economic benefit
  - *Incentive programs favor CHP DG*
- Benefits need to be evaluated on business case need-  
- not traditional economics
- Environmental requirements increasing
- Customers need to identify priorities and perform  
analysis with internal team and/or consultant
  - *Technical and economic issues of DG solutions*
  - *Project management*
  - *Engineering*
  - *Permits*



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**San Diego, CA**



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